



Local recoveries of mass flux at submonthly scales using GRACE data

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The GRACE mission is providing the first insights into the global mass flux of the Earth. The monthly gravity solutions expressed in spherical harmonics are capable of resolving global hydrological signals to approximately degree 15 and to spatial scales of about 750 km. However the use of a global function, e.g., spherical harmonics, does not permit us to fully exploit the signal in the GRACE data. We demonstrate the GRACE data can resolve mass flux signals at submonthly time scales using local solutions from mass concentrations. We use data from 2003 focused in select regions such as the Mississippi basin to demonstrate this method of analysis, and make comparisons to hydrological models. An error assessment of the local mascon technique is also presented.